APPLICATION FOR
UNITED STATES PATENT

in the names of

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For

RANKING ITEMS

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RANKING ITEMS

CROSS-REFERENCE TO RELATED APPLICATIONS

5   This application claims priority from U.S. Provisional

Application No. 60/296,546, filed June 7, 2001, and titled

"Evaluative Method for Ranking Items," which is incorporated

by reference.

BACKGROUND

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This invention relates to ranking items. Information

about the social and environmental practices of companies has

been collected and distributed since the 1970s by investment

15   funds, consumer-information organizations and research firms.

Typically, the information is used to quantify the relative

performance of companies on issues of "social responsibility"

such as management diversity, involvement with repressive

international regimes, environmental destructiveness and

20   cruelty to animals in product testing.

SUMMARY

In one aspect the invention is a method of ranking items.

The method includes displaying a set of categories. Each

category has a set of weights for a user to choose. Each item

is associated with the set of categories. The method also

includes displaying a search result based on the weights

chosen by the user. The search result includes a ranking of

5   the items.

This aspect may have one or more of the following

embodiments. The method includes using each category as an

area of social responsibility. The method includes displaying

a set of factors for each category when selected by the user

10   where each factor capable of being chosen by the user; and

collating the categories weighted by the user. The factors

are chosen by the user and a product is chosen by the user.

The method includes selecting a list of companies that have

the product, and determining a rating for each company based

15   on the categories weighted by the user and the factors chosen

by the user. Selecting a list of companies includes finding a

set of brands associated with the product and finding the

company associated with each brand. Displaying a search

result includes displaying the search result based on the

20   factors chosen by the user. Displaying a search result

comprises ranking the brands on a five-star scale. The five-

star scale includes a one-star rating, a two-star rating, a

three-star rating, a four-star rating, and a five-star rating.

The method includes using the five-star rating as the best

rating of the ratings determined. The method includes

receiving information from an external database and

quantifying the data on a scale. Displaying a search result

5   includes displaying a ranking of companies.

In another aspect, the invention is an apparatus. The

apparatus includes a memory that stores executable

instructions for ranking items based on a set of user

preferences and a processor. The processor executes

10   instructions to display a set of categories. Each category

has a set of weights for a user to choose. Each item is

associated with the set of categories. The process also

executes instructions to display a search result based on the

weights chosen by the user, the search result including a

15   ranking of the items.

This aspect may have one or more of the following

embodiments. The processor includes instructions to use each

category as an area of social responsibility. The processor

includes instructions to display a set of factors for each

20   category when selected by the user. Each factor is capable of

being chosen by the user. The processor includes instructions

to collate the categories weighted by the user where the

factors are chosen by the user and a product is chosen by the

user. The processor includes instructions to select a list of

companies that have the product and to determine a rating for

each company based on the categories weighted by the user and

the factors chosen by the user. The instructions to select a

5 list of companies includes instructions to find a set of

brands associated with the product and to find the company

associated with each brand. The instructions to display a

search result includes instructions to display the search

result based on the factors chosen by the user. The

10 instructions to display a search result includes instructions

to rank the brands on a five-star scale. The five-star scale

includes a one-star rating, a two-star rating, a three-star

rating, a four-star rating, and a five-star rating. The

processor also includes to use the five-star rating as the

15 best rating of the ratings determined. The processor includes

instructions to receive information from an external database

and to quantify the data on a scale. The instructions to

display a search result includes instructions to display a

ranking of companies.

20 In still another aspect, the invention is an article.

The article includes a machine-readable medium that stores

executable instructions for ranking items based on a set of

user preferences. The instructions cause a machine to display

a set of categories. Each category has a set of weights for a user to choose. Each item is associated with the set of categories. The instructions also cause a machine to display a search result based on the weights chosen by the user, the search result including a ranking of the items.

This aspect may have one or more of the following embodiments. The medium stores executable instructions that cause a machine to use each category as an area of social responsibility. The medium stores executable instructions that cause a machine to display a set of factors for each category when selected by the user. Each factor is capable of being chosen by the user. The medium also stores executable instructions to collate the categories weighted by the user. The factors are chosen by the user, and a product is chosen by the user. The medium stores executable instructions that cause a machine to select a list of companies that have the product and to determine a rating for each company based on the categories weighted by the user and the factors chosen by the user. The executable instructions that causing a machine to select a list of companies includes executable instructions that causing a machine to find a set of brands associated with the product and to find the company associated with each brand. The executable instructions that cause a machine to

display a search result includes executable instructions that cause a machine to display the search result based on the factors chosen by the user. The executable instructions that cause a machine to display a search result includes executable

5 instructions that cause a machine to rank the brands on a five-star scale. The five-star scale includes a one-star rating, a two-star rating, a three-star rating, a four-star rating, and a five-star rating. The medium stores executable instructions that cause a machine to use the five-star rating

10 as the best rating of the ratings determined. The medium stores executable instructions that cause a machine to receive information from an external database and to quantify the data on a scale. The executable instructions that cause a machine to display a search result includes executable instructions

15 that cause a machine to display a ranking of companies.

Some or all of the aspects of the invention described above may have some or all of the following advantages. The invention allows the user to choose categories important to the user. In addition, the user can also choose which factors

20 are included in each category. Thus, the user can purchase products from companies based on the user's individual preferences in social responsibility issues.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flowchart of a process for ranking items.

FIG. 2A is a table for showing criteria versus companies.

FIG. 2B is a table showing the composite score of the criteria for each company.

FIG. 3 is a flowchart for displaying search options.

FIG. 4A is a screenshot of a hyper text markup language (HTML) input form.

FIG. 4B is a screenshot of the HTML input form with a category expanded to show a set of factors.

FIG. 4C is a screenshot of the HTML input with a second pull-down menu.

FIG. 4D is a screenshot of the HTML input with a third pull-down menu.

FIG. 4E is a screen shot after a user has filled-out the HTML input form.

FIG. 5 is a flowchart of a subprocess for collating user input.

FIG. 6 is a flowchart of a subprocess for displaying the results of the search.

FIG. 7 is a screen shot showing the display results of a search for a product.

FIG. 8 is a look-up table.

FIG. 9 is a block diagram of a computer system on which the process of FIG. 1 may be implemented.

FIG. 10 is a block diagram of a database structure.

DESCRIPTION

Referring to FIG. 1, process 10 is a method for ranking items based on a user's preferences. Process 10 allows the user to choose categories to determine a ranking of items. Each category has a categorical score associated with a corresponding item. As will be explained below, each category includes factors that make up the categorical score so that a user can eliminate from consideration factors that are not important to the user in ranking the items. Process 10 also weights each of the categories chosen by the user. Process 10 retrieves the categorical scores from a database and ranks the items based on the user's chosen categories and factors and the corresponding chosen weights.

Process 10 allows a user to choose and weigh categories related to social responsibility with the option of eliminating undesirable factors and to rank companies so that a user can make a decision informed by a user's individual preferences when purchasing a product. Specifically, process

10 displays search option (12), collates user input(14),

selects applicable companies (16), determines company ratings

(18), and displays search results (20).

Referring to FIGS. 2A and 2B, process 10 enables the user

5   to choose specific categories and factors important to the

user. For example, in a list of companies 32, each company

has a categorical score for each "social responsibility"

category included in the list of categories. Process 10

allows the user to isolate one or more of the categories. In

10   other words, there is a means for the user to choose a few

categories, and thereby eliminate those categories that the

user is not interested in. In addition, the user is able to

weight the categories and/or eliminate any of the factors that

make-up the categorical score. With process 10, the user has

15   more options than receiving a composite score 38, which would

be an average of all the categories in the list of categories

34.

Referring to FIGS. 3 and 4A, process 10 allows the user

to do a search of companies that offer a product the user

20   wishes to buy and to rank those companies based on the social

responsibility categories weighted and the factors chosen by

the user. Process 10 displays (12) search options for the

user to select (FIG. 1). An exemplary implementation of

displaying the search options seeks to pull all the available information on the categories and the factors from a database and format the information so a user can choose amongst the information. Process 12 retrieves (24) all data categories of

5 social responsibility sorted in the order specified in the database. For each category, process 12 also retrieves (26) the factors for each category sorted in the order specified by the database. Process 12 generates (28) a hyper text markup language (HTML) input form 40.

10 An exemplary implementation of generating an input form 40 is shown in FIGS. 4A-4E. The HTML input form 40 has a social responsibility preferences section 41 and a product category section 43. The social responsibility preferences section 41 has a list of "social responsibility" categories

15 42. The user chooses, from a list of importance values 44, the relative importance of each category 42. The list of importance values 44 includes values of "high," "medium," "low" or "none". The user chooses one of the values for each category. As will be explained below, a "high" is weighted a

20 "4," "medium" is weighted a "2," and "low" is weighted a "1" and "none" is weighted a zero. If the user chooses none of the importance values 44, a value of "none" is chosen by process 10. Therefore, the user can choose and weight each of

the categories in the list of categories 42 such as an "Environment" category 46 and a "Hiring Practices" category 48.

The user can expand a category to observe a list of factors that make up the category by moving a cursor on a phrase "details" 50 beside the desired category and clicking a mouse button. In other embodiments, other hyperlinks such as icons are used. As illustrated in FIG. 4B, when expanded, the "Environment" category 46 has a list of "Environment" factors 51 that include a "Tons of Toxic Waste" factor 52, a "Tons of CO_2" factor 54, and a "Superfund Sites" factor 56. The "Hiring Practices" category is made-up of a "Minority Workers" factor (not shown) and a "Female CEO" factor (not shown). The user has the option of weighting the entire category. For example, the "Hiring Practices" category 48 is ranked "medium." The user has another option of choosing factors within a category for consideration in the ranking determination. For example, the factors of "Tons of Toxic Waste" 52 and "Tons of CO_2" 56 are chosen from the "Environment" category 46 so that the "Superfund Sites" factor 58 will not be considered in an "Environment" categorical score.

Referring to FIG. 4C, once the user has specified the user's preferences in the social responsibility preferences section 41, the user inputs information on the product the user seeks to purchase in the product category section 43.

5   The user picks a broad description of a product area where the product can be found in from a first pull-down menu 60. Process 10 then automatically generates a second pull-down menu 62 that lists types of products within the broad description. Process 10 will also generate a third pull-down

10   menu 64 to focus on a specific area of products as shown in FIG. 4D. For example, a user wishes to use the "social responsibility" preferences to find a company that produces computer hardware. The user would select "technology" in the first pull-down menu 60 from a list (not shown) of other broad

15   areas. The second pull-down menu 62 is generated which has a sub-area of "technology." The user would select "computers" in the second pull-down menu 62. The third pull-down menu 64 has products under "computers." The user would select "hardware" in the third pull-down menu 64, as shown in FIG.

20   4E.

After the user has filled out both sections, the social responsibility preference section 41 and the product category section 43, the information is ready to be searched. The user

starts the search by moving the cursor on the "search" button 70 and clicking a mouse button.

In this embodiment, process 10 is available at a website. If the user registers at the website, the user's preferences will be stored so that the next time the user visits the site, the HTML input form 40 will already be filled out based on the previous search so that the user only needs to fill out product category section 43.

Referring to FIG. 5, process 10 collates (14) the user's input after the user submits HTML input form 40, by using a process 14. Process 14 collects (82) the category weights submitted by the user. For example, the "Environment" category 46 was selected as "high" and therefore carries a weight of "4," and the "Hiring practices" category 48 was selected as a "medium" so it carries a weight of "2." Process 14 collects (84) a count of the factors submitted for each category by the user. Since the user selected two factors, the "Tons of Toxic Waste" factor 52 and the "Tons of CO2" factor 54, the "Environment" category 46 has a count of 2. The "Hiring Practices" category 48 was not altered by the user so its count is two by default. Process 14 checks (86) for any illegal combinations of factors. The action of checking for illegal combinations protects third party database

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providers. For example, if the product category is "beverages" and the only factor considered in the "beverages" category is "alcohol" then it would be simple to determine information on companies that exclusively sold alcohol. Thus,

5   the database provider's database could be easily accessed. Process 14 generates (88) a weighted factors list initializing each factor's weight to 0.0. Process 14 assigns (90) each category a divisor value. If the category was expanded to show a detail view, and the count of factors submitted for

10 that category equals zero, then the divisor equals zero. If the category was not in the detail view then the divisor equals the total number of factors associated with the rated category in the system. Otherwise, the divisor equals the number of factors submitted by the user. For example, the

15 "Environment" divisor is 2 because that was the number of factors submitted by the user and the "Hiring" divisor is equal to 2 because the user did not request a detail view and there were two factors that made up the "Hiring" category 48. For each factor submitted, process 14 assigns (92) to the

20 weighted factors list a floating point value equal to 1 divided by the divisor multiplied by the category weight. Therefore, the "Tons of Toxic Waste" factor 52 is equal to 1/2 X 4 = 2.0, and the "Tons of CO_2" factor 54 is equal to 1/2 X 4

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= 2.0. The "Minority Workers" factor is equal to 1/2 X 2.0 = 1.0 and the "Female CEO" factor is equal to 1/2 X 2 = 1.0. The weighted factors list is populated and summarized in the following table.

	Weighted Factors
Tons of Toxic Waste	2.0
Tons of CO_2	2.0
Superfund Sites	0.0
Minority Workers	1.0
Female CEO	1.0

5

Process 10 selects (16) applicable companies based on the product category chosen by the user in the product category section 43. Therefore, only a subset of the companies in the database will be applicable in the search. The subset of

10 companies is defined as all companies associated with a brand, and each brand is associated with the product category chosen by the user. For example, process 10 finds all the brands associated with the computer hardware product category such as Brand A, Brand B, and Brand C. Then, process 10 finds the

15 company associated with each brand such as Company X (Brand A and Brand B) and Company Y (Brand C).

Process 10 determines (18) each company's ratings. Each company is rated by each factor. The rating is a scaled value that has been normalized from raw data to a scale between 0 and 9. For example, in the database, Company Q is the highest

5   producer of carbon dioxide and releases 6 tons per year. The "Tons of CO_2" factor 54 would be a "9" for Company Q. Any other company that has less than 6 tons will receive a score below "9." The company that has the smallest amount of carbon dioxide company in the database is ranked a "1." If a company

10   did not produce carbon dioxide it would receive a "0." For example, the following are the rated factors retrieved from the data base.

	Company A	Company B
Tons of Toxic Waste	7	3
Tons of CO_2	8	4
Superfund Sites	5	4
Minority Workers	7	8
Female CEO	1	1

For each rated factor process 10 multiplies the company's

15   rating in each factor by the weights in the weighted list for each factor. The total of all the factors is the company's final value.

	Company A	Company B
Tons of Toxic Waste	7X2=14	3X2=6
Tons of CO$_2$	8X2=16	4X2=8
Superfund Sites	5X0=0	4X0=0
Minority Workers	7X1=7	8X1=8
Female CEO	1X1=1	1X1=1
Total Score	**48**	**23**

Referring to FIGS. 6 and 7, process 10 displays (20) search results. An exemplary implementation of displaying the search results displays the research results in a star ranking scheme. The star ranking scheme in this embodiment ranks the best product according to the user's choices with five stars and the worst product having one star. Process 20 sorts (91) the companies in descending order based on the company's final value. Process 20 retrieves (93) a list of brands associated with that company and the selected product category.

Referring to FIGS. 6-8, process 20 determines (95) a star rating for each brand depending on the number of brands retrieved. Process 20 allocates the number of stars by using a look-up table 101. In the look-up table 101, five stars represents the best score and one star is the worst score.

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Four stars is above average of the scores retrieved and two stars is below average of the scores retrieved. Three stars is the average of the scores retrieved. For example, there are three brands retrieved: Brand A has a score of 67, Brand B has a score of 44, and Brand C has a score of 23. Using look-up table 101, Brand A gets five stars, Brand B gets three stars and Brand C gets one star.

Process 20 places (97) the brand rankings by stars in an HTML results box 94. A brand column 96 lists the brands in descending order. A "Your Ratings" column 97 indicates the stars corresponding to each brand. The user has an option of clicking a "Product Info" text button 98 to learn additional details on a corresponding brand. A "Buy Now" text button 99 allows the user to purchase a brand. By clicking on the "Buy Now" text button 99, all retailers associated with the brand are selected and sorted by commission. Commissions are in one of three formats: percentage of purchase price, click-through fee or other as determined by a business relationship with a commercial entity. A click-through fee is a fee paid by a seller to a web site operator that directs a buyer to the seller via the web page. Deals are sorted first by commission type, then high to low within the commission type. Commission

types are displayed in the following order: Percentage,

click-through, and other.

FIG. 9 shows a computer 100 for ranking items using

process 10. Computer 100 includes a processor 102 for ranking

5   items, a memory 104, and a storage medium 106 (e.g., hard

disk). Storage medium 106 stores operating system 110, data

112 storing the categorical scores, and computer instructions

108 which are executed by processor 102 out of memory 104 to

perform process 10.

10   Process 10 is not limited to use with the hardware and

software of FIG. 9; it may find applicability in any computing

or processing environment and with any type of machine that is

capable of running a computer program. Process 10 may be

implemented in hardware, software, or a combination of the

15   two. Process 10 may be implemented in computer programs

executed on programmable computers/machines that each include

a processor, a storage medium/article readable by the

processor (including volatile and non-volatile memory and/or

storage elements), at least one input device, and one or more

20   output devices. Program code may be applied to data entered

using an input device to perform process 10 and to generate

output information.

Each such program may be implemented in a high level procedural or object-oriented programming language to communicate with a computer system. However, the programs can be implemented in assembly or machine language. The language may be a compiled or an interpreted language. Each computer program may be stored on a storage medium (article) or device (e.g., CD-ROM, hard disk, or magnetic diskette) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform process 10. Process 10 may also be implemented as a machine-readable storage medium, configured with a computer program, where upon execution, instructions in the computer program cause the computer to operate in accordance with process 10.

The process is not limited to the specific embodiments described herein. For example, process 10 need not be performed on the Internet. For example, process 10 can be used on a wide area network (WAN), a local area network (LAN) or on a stand alone personal computer based within a retail store. The process is not limited to items that are companies. Items may be any subject that can be ranked including people and organizations. The process is not limited to the categories described herein. The categories

may be in other areas than social responsibility. For

example, categories could be changed to include quality

categories so that a user can weigh both area when searching

for a product. The process is not limited to the five-star

scale but can use any scale of measure to show variation

amongst items. The process can also be applied to services.

The process is not limited to the specific processing order of

FIGS. 1, 3, 5, and 6. Rather, the blocks of FIGS. 1, 3, 5,

and 6 may be re-ordered, as necessary, to achieve the results

set forth above. In one embodiment, FIG. 10 represents the

architectural database used to search information using social

responsibility categories.

Other embodiments are also within the scope of the

following claims.

What is claimed is: